Math 370 Spring 97

Quiz **2** Ron Buckmire

Name: ____________________

Date: ____________________

Time Begun: ____________________

Time Ended: ____________________

Numerical Analysis
Friday April 4, 1997
Ron Buckmire

Topic covered: Numerical Integration

Instructions:

1. Once you open the quiz, you have 60 minutes to complete it.
2. You may use the book or any of your class notes. You must work alone.
3. If you use your own paper, please staple it to the quiz before coming to class. If you don't have a stapler, buy one.
4. After completing the quiz, sign the pledge below stating on your honor that you have adhered to these rules.
5. Your solutions must have enough details such that an impartial observer can read your work and determine HOW you came up with your solution.
6. Relax and enjoy...
7. **This quiz is due on Monday, April 7**, in class. NO LATE QUIZZES WILL BE ACCEPTED.

Pledge: I, ____________________, pledge my honor as a human being and Occidental student, that I have followed all the rules above to the letter and in spirit.

SHOW ALL YOUR WORK

This problem is about comparing the **simplest** form of the familiar quadrature rules. That is, there is one interval from a to b and you are only allowed to evaluate the function **once**, **twice** or **three** times.

1. Using only one function evaluation, estimate the value of $\int_2^e \ln(x)\,dx$. What is the name of the method you are using?

2. Using only two function evaluations, estimate the value of $\int_2^e \ln(x)\,dx$. What is the name of the method you are using?

3. Using only three function evaluations, estimate the value of $\int_2^e \ln x dx$. What is the name of the method you are using?

4. Compute the exact value of $\int_2^e \ln(x)\,dx$ and use this to find the actual error in your estimates in problems **(1)**, **(2)** and **(3)**.